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The (RADHS) program was initiated in 1980 at the suggestion of Frank Press, Science Advisor to the President. The objectives are to stimulate broader interest in minority communities in careers in science and engineering and to establish individual working relationships of students with active researchers who may become helpful mentors when students need advice on college and careers and need letters of recommendations. This initial reprot lists the mentors - their academin qualifications and specialties 0, who will serve in the AFOSR sponsored 1982 RADHS program directed by ABET.

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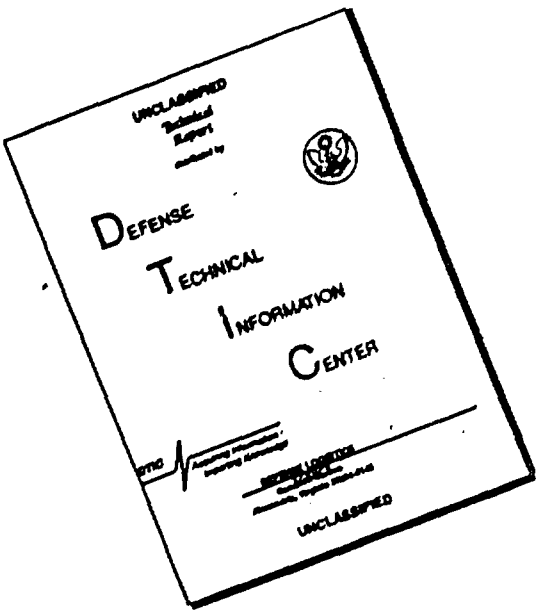

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RADHS

1982

Program Funded by the
United States Air Force

Participating Schools

University of New Mexico
Ohio State University
Tuskegee Institute

Initial Report

F49620-81-C-0081

Roy B. Cowin

June 1982

CONTENTS

Frank Press, Science Advisor to the President, stated in a memorandum dated October 23, 1979 that the Nation's and the Government's efforts to recruit and sustain minority students in science and engineering fields seems to have plateaued. Thus, it was suggested that the four departments and three agencies addressed should launch a program of apprenticeships in research laboratories for minority high school students, beginning with the summer of 1980.

In 1979 the Engineers' Council for Professional Development (ECPD) - now the Accreditation Board for Engineering and Technology (ABET) - conducted 53 minority oriented summer programs at 37 schools of engineering, four of which were conducted under a contract with the Air Force Office of Scientific Research (AFOSR). Thus, it was decided that the Air Force Research Apprenticeships for Disadvantaged High Schoolers (RADHS) should augment its Uninitiates Introduction to Engineering (UNITE) program being conducted at Massachusetts Institute of Technology, The University of New Mexico, Ohio State University, and Tuskegee Institute. In 1980 programs where held at each of the schools except MIT, and a total of sixty apprentice-mentors participated in these programs.

In 1980 program directors met on January 9, 1981 with Dr. Irwin Goldstein, an independent evaluator from the University of Maryland, to develop a coordinated program for 1981. The 1980 programs had been advertised by announcements to principals, guidance counselors, and heads of science departments in all high schools located within 250 miles of the participating colleges. For 1981 it was decided to expand the area covered, but contact principals only. ABET printed the materials developed at this meeting as a concensus and made distribution by late February. This was repeated in 1982 following a directors' meeting held in San Diego, CA on February 4-5.

APPENDIX A

Mentor-Apprentice Pairings

Program Descriptions

Mentors' Qualifications

The University

of

New Mexico

Peggy Maestas, Director

UNIVERSITY OF NEW MEXICO
COLLEGE OF ENGINEERING

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS

LIST OF MENTORS

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH INTEREST
1.	Atencio, Alonzo C.	Ph.D.	1967	University of Colorado	Metabolism of Antithrombin III
2.	Barton, Larry	Ph.D.	1969	University of Nebraska	Production of Hydrogen through Biophotolysis
3.	Brogan, James D.	Ph.D.	1977	University of Tennessee	Fatal Traffic Accidents in New Mexico
4.	Degheidy, Mourad El	M.S. (May)	1982	University of New Mexico	Enhancement of an Implantable Coated Wire Glucose Sensor
5.	Ghanbari, Farajollah	M.S.	1979	University of New Mexico	$^{65}Cu(n,2n)^{64}Cu$, $^{63}Cu(n,2n)^{62}Cu$ Cross Sections at 14.78 Mev
6.	Hawkins, Charles F.	Ph.D.	1970	University of Michigan	Cardiac Audiometry
7.	Kim, Jin J.	Ph.D.	1974	University of Wisconsin	Investigations of the Copper Vapor Laser Excited by a Fast Electrical Discharge
8.	Martinez, Andrew O.	Ph.D.	1973	University of Arizona	Genetic Analysis of Cell Proliferation
9.	Mead, Richard W.	Ph.D.	1971	University of Arizona	Leaching of Combusted Cores of Saline Zone Oil Shale
10.	Price, David W.	M.S.	1977	University of New Mexico	Creation and Observation of a Plasma Erosion Switch

UNIVERSITY OF NEW MEXICO
COLLEGE OF ENGINEERING

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LIST OF MENTORS

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH INTEREST
11.	Reyes, Edward	Ph.D.	1974	University of Colorado	GTP A Tool for Early Identification of FAS
12.	Sanchez, Lawrence C.	Ph.D.	Pending	University of New Mexico	Vacuum System Designs for Fusion Studie
13.	Smith, Douglas	Ph.D. (May)	1982	University of New Mexico	Solidification During the Flow of Fluid An Experimental and Theoretical
14.	Thomson, Bruce M.	Ph.D.	1979	Rice University	Geochemical Investigations of Aqueous Contamination from Uranium Mine Backfilling
16.	Wang-Chang, Gu	M.S.	Pending	University of New Mexico	3-D Numerical Simulation for compressib Subsonic Fluid Flow
18.	Wildin, M. W.	Ph.D.	1963	Purdue University	Monitoring the Mechanical Engineering Building
17.	Williams, Frank	Ph.D.	1973	Stanford University	Liquefaction Catalyst Characterization Catalyst Reactor
15.	Woodall, David	Ph.D.	1974	Cornell University	Plasma Gun Instrumentation
19.	Yeldarthy, Ramesh	M.S.	Pending	University of New Mexico	Production of Ethanol From Wood Residue
20.	Zeigler, Steven	Ph.D.	Pending	University of New Mexico	Investigation of Nitrate Contamination in Private Wells

The

Ohio State University

Minnie M. McGee, Director

OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS

LIST OF MENTORS

NO.	NAME		DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH INTEREST
1.	Bedford, Keith Assoc. Prof.	Civil	Ph.D.	1974	Cornell University	Coastal Engineering and transport phenomena, numerical modeling, sediment transport, and engineering.
2.	Bragg, Michael Asst. Professor	Aero-Astro	Ph.D.	1981	The Ohio State Univ.	Aircraft Icing
3.	Collins, Stuart A. Professor	Electrical	Ph.D.	1960	Massachusetts Institute of Technology	Microwave masers and lasers
4.	Demel, John T Professor	Engr. Graphics	Ph.D.	1973	Iowa State Univ.	Computer graphics in engineering
5.	Gregorek, Gerald Professor	Aero-Astro	Ph.D.	1967	The Ohio State Univ.	Analysis of subsonic and transonic airfoils studies in subsonic aerodynamics of vehicles moving in tubes and investigations of thrust augmentation systems for vertical take off aircraft.
6.	Graff, Karl Professor	Welding	Ph.D.	1964	Cornell Univ.	Studies in power ultrasonics
7.	John, James E. Professor	Mechanical	Ph.D.	1963	Univ. of Maryland	Machine design instrumentation and fluid mechanics.
8.	Jones, Charles D. Professor	Mechanical	Ph.D.	1952	The Ohio State Univ.	Thermodynamics thermal systems & fluid dynamics

OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS

LIST OF MENTORS

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH INTEREST
9.	McDonald, Digby Professor Metallurgical	Ph.D.	1969	Univ. of Calgary, Canada	Corrosion in high temperature aqueous systems
10.	Nemeth, Zoltan A. Assoc. Professor Civil	Ph.D.	1968	The Ohio State Univ.	The evaluation and treatment of traffic control systems in transportation engineering.
11.	Ozguner, Umit Asst. Prof. Electrical	Ph.D.	1975	University of IL	Application of power systems control and analysis and control of interconnected systems.
12.	Reed, Eidis, O Professor, Engr. Graphics	MA	1950	The Ohio State Univ.	Development of freshmen level course material for engineering graphics.
13.	Rockwell, Thomas Professor Industrial Systems	Ph.D.	1955	The Ohio State Univ.	Human factors research and highway safety
14.	Smith, George Assoc. Prof. Industrial Systems	Ph.D.	1969	Oklahoma State Univ.	Human factors engineering, labor relation management factors affecting arbitration and productivity.
15.	St. Pierre, George Prof. Metallurgical	Ph.D.	1954	Massachuetts Institute of Technology	The application of physical chemistry in metallurgical process.
16.	Terzuoli, Andrew Grad. Research Assoc. Electro-Science Lab.	Ph.D.	Pending	The Ohio State Univ.	Underground pulse radar system, antenna design, signal processing data reduction management and display.

OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS

LIST OF MENTORS

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH INTEREST
17.	Weed, Herman Prof. Bio-Medical	MS	1948	The Ohio State Univ.	Bio-Medical Engineering
18.	Wilson, Ralph Grad Research Asst.	MS	1981	The Ohio State Univ.	Use of physics and electronics in bio-medical engineer.

Tuskegee Institute

Shaik Jeelani, Director

TUSKEGEE INSTITUTE
SCHOOL OF ENGINEERING

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS

LIST OF MENTORS

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH
1.	ADALUMO, S. Instructor EE	M.S.	1981	Tuskegee Institute	Investigation of degradation process in insulating materials.
2.	ASLAM, M. Instructor ME	M.S.	1982	Tuskegee Institute	Experimental stress analysis.
3.	CLAYTON, W. F. Assoc. Prof EE	Ph.D	1980	Univ. of Massachusetts	Automatic Control Systems.
4.	DILLON, I. G. Prof. Chem.E	Ph.D.	1965	Illinois Inst. of Tech.	Determination of permeation of hazardous chemicals through protective clothing
5.	FUHR, D. Asst. Prof EE	M.S.	1973	Univ. of Alaska	Intercomputer program conversion and testing techniques.
6.	GRANT, E. A. Asst. Prof. EE	M.S.	1966	Tuskegee Institute	Electronics
7.	JEELANI, S. Professor ME	Ph.D.	1974	N. C. State Univ.	Experimental stress analysis
8.	JENKINS, R. Assoc. Prof. ME	Ph.D.	1969	Perdue Univ.	An improved computer model for prediction of axial gas turbine performance lones.
9.	JONES, R. K. Asst. Prof EE	M.S.	1965	Tuskegee Institute	Digital Instrumentation Low-Technology manufacturing.

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS
(Continued)

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH
10.	KOTHARI, I. I.	Ph.D.	1961	Univ. of California	Strength behavior of monodispersed and multiphase porous materials.
11.	KUMAR, G. N. Professor ME	Ph.D.	1978	Auburn University	Comprehensive energy management program for educational institutions
12.	LIKENS, D.	Ph.D.	Pending	Auburn University	Computers
13.	MAJLESSI, H. Instructor Chem.E	M.S.	1980	Auburn University	Heat and mass transfer.
14.	MOHAZZABI, P. Asst. Prof. ME	Ph.D.	1975	Univ. of California	Heat and mass transfer materials.
15.	MOHIUDDIN, I. Research Asst ME	M.S.	1982	Tuskegee Institute	Vortex controlled diffusers.
16.	MURUGANANDAM, N. Instructor Chem.E	M.S.	1980	Univ. of California	Determination of permeation of hazardous chemicals through protective clothing
17.	MUSIAL, M. Research Asst. ME	M.S.	1977	Gdanst. Poly. Inst.	Stress Analysis.
18.	OKEKE, B. Asst. Professor ME	Ph.D.	1979	Mississippi State Univ.	Natural convection phenomena in solar collectors
19.	OLAS, A. Postdoctoral Fellow ME	Ph.D.	1973	Polish Acad. of Science	Stability of motion.

1982 RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS
(Continued)

NO.	NAME	DEGREE	YEAR	UNIVERSITY	CURRENT RESEARCH
20.	RAMIREZ, R. P. Professor ME	Ph.D.	1960	Georgia Tech.	Solid mechanics and design
21.	RAY, P. K. Assoc. Professor ME	Ph.D.	1975	Penn State University	Electrical propulsion and nuclear engineering
22.	SAGDEO, P. Asst. Professor ME	Ph.D.	1981	Georgia Tech.	Performance of I.G. engines
23.	SHEIKH, A. Research Asst. ME	M.S.	Pending	Tuskegee Institute	Comprehensive energy management.

APPENDIX B

Promotion

ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY, INC.

FORMERLY ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT
INCORPORATED

345 EAST FORTY-SEVENTH STREET / NEW YORK, N.Y. 10017 / (212) 644-7685

DAVID R. REYES-GUERRA
EXECUTIVE DIRECTOR

February 1982

Dear Principal:

This summer the United States Air Force Office of Scientific Research (AFOSR) will sponsor two important Accreditation Board for Engineering and Technology (formerly the Engineers' Council for Professional Development) projects designed to motivate minority high school students to consider pursuing an engineering education.

Knowing of your continued interest in developing the scientific and technclogical interest of students, we are furnishing you a poster and applications for these programs. The applications may be reproduced, should you need more.

One of the programs - UNITE (Uninitiates Introduction To Engineering) - has been sponsored by AFOSR at one or more colleges of engineering for each of the past seven years. Each participating school includes a visit to an Air Force Research Center in their program.

UNITE is a rigorous one to two-week summer program designed to introduce students to an engineering education and to motivate them to consider engineering as a career. Selected students will be housed and provided three meals per day at no cost, but they must provide their own transportation to and from the college.

The second program - RADHS (Research Apprenticeships for Disadvantaged High Schoolers) - is being sponsored at three colleges of engineering for the third year.

RADHS is a six to ten-week work experience in a research laboratory. The selected students will work as apprentices under a leading engineering researcher at a college of engineering, attend classes in computer programming and report writing, and receive a stipend of $135 per week. Room and board may be obtained at minimal costs from the three participating colleges.

I thank you in advance for any services you render your students in our recruiting efforts.

Sincerely,

Roy B Cowin

Roy B. Cowin
Guidance Director

RBC:dr
Encl.